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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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WILLKIE FARR & GALLAGHER LLP  
INTELLECTUAL PROPERTY LEGAL ASSISTANTS  
787 SEVENTH AVE  
NEW YORK, NY 10019-6099

EXAMINER

COLEMAN, ERIC

ART UNIT PAPER NUMBER

2183

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/672,440

Applicant(s)

PATEL ET AL.

Examiner

Eric Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-33 is/are allowed.
- 6) ☒ Claim(s) 34-39, 44 and 45 is/are rejected.
- 7) ☒ Claim(s) 40-43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 34,36,39,44,45 is rejected under 35 U.S.C. 102(b) as being anticipated by Alpert (patent No. 5,659,679).

3. Alpert taught (claims 34,36) recognizing an condition including exception condition, and in response, setting the processor into single-step mode; and taking single-step exception after executing the second instruction, and setting the processor out of single-step mode in industry standard processor such as the Pentium (e.g., see col. 1, line13-col. 2, line 63). Also processor exceptions in processors that perform more than one task at a time such as the Pentium are well known to include conditions that affect another instruction such as writing to a location to read by the other instruction. As per claim 39 instructions that write to registers wherein in one implementation the data is stored in one or more stacks (e.g., see col. lines 36-52 and col. 5, line 59-col. 6, line 5). Further as understood Alpert taught (claim 44) servicing a single-step exception including querying a debug touch record (e.g., see col. 6, lines 28-40). As per claim 45 Alpert taught an instruction for writing an interrupt enable flag of the computer (e.g., see col. 4, lines 21-37).

***Claim Rejections - 35 USC § 103***

4. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alpert as applied to claim 34 above, and further in view of Ekner (patent No. 6,289,445).

5. Ekner taught the invention substantially as claimed including a data processing ("DP") system comprising:

a) During execution of an instruction on a computer, in response to an operation of the instruction calling for an architecturally-visible side-effect in an architecturally-visible storage location, storing a value (exception token) representative of an architecturally-visible representation of the side effect, a format of the representative value being different than architecturally-visible representation of the side effect and resuming the execution without generating the architecturally-visible side effect (e.g., see figs. 6a,6b,7a,7b and col. 3, lines 23-43 and col. 5, line 61-col. 8, line 57 and col. 10, lines 29-53).

6. Ekner did not expressly detail (claim 35) the later writing of the architecturally-visible representation corresponding to the representative value into the architecturally-visible storage location. Ekner, however taught later using the exception token for processing the side-effect or exception and then cleared (e.g., see col. 8, line 48-col. 11). Therefore one of ordinary skill would have been motivated to store a architecturally visible version of the token information in order for the system to process the exception routine especially since the exception token was cleared.

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7. Claim 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alpert as applied to claim 36 above and further in view of Song (patent No. 6,061,711) and Iyer (patent No. 6,481,007)

8. Song taught a) Storing a context of a first process and loading a context of a second process to place the second process into execution, each context comprising a set of resources to be reloaded whenever a process associated with the context is reloaded for execution (e.g., see col. 1, lines 12-col. 2, line 60); b) Instructions marked for execution in the pipeline to indicate whether or not a context switch may be performed at a boundary of the marked instruction (e.g., see col. 2, lines 47-60 and col. 10 line 7-col. 11, line 63).

9. Song did not expressly detail (claim 37) that at least some of the instructions a multi-stage execution pipeline of the computer maintaining results in storage resources outside the context resource set. Iyer however taught grouping exception handlers where some execution handlers held a superset execution data of other exception handlers and therefore data outside the context resource set (e.g., see col. 5, lines 41-65). This would have allowed for the establishing of a second exception.

10. It would have been obvious to one of ordinary skill in the DP art to combine the teachings of Song and Iyer. Both Song and Iyer were directed toward the problems of performing context switches in a DP system. One of ordinary skill would have been motivated incorporate the Iyer teachings of providing grouped exception handlers and maintaining data in groups where one group is superset of another group in order to allow one process to pass variables to another process area without copying variables

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and not affect the processing of third process (e.g., see col. 5, lines 41-67 of Iyer).

Further one of ordinary skill would have been motivated to incorporate the Song and Iyer teachings into the Alpert system in order to provide means to process context switches that were detected in the Alpert system during debugging (e.g., see col. 5, line 47-col. 6, line 49).

11. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alpert as applied to claim 36 above and further in view Iyer (patent No. 6,481,007).

12. Iyer taught (claim 38) recognizing hardware execution of an instruction stream, recognizing a condition that is a superset of a condition whose occurrence is desired to be detected, and raising a first exception as a result of recognizing the superset condition; filtering the superset condition to determine whether the desired condition has occurred by grouping exception handlers where some execution handlers held a superset execution data of other exception handlers and therefore data outside the context resource set (e.g., see col. 5, lines 41-65). This allowed for the establishing of a second exception.

13. Further one of ordinary skill would have been motivated to incorporate the Song and Iyer teachings into the Alpert system in order to provide means to process context switches that were detected in the Alpert system during debugging (e.g., see col. 5, line 47-col. 6, line 49).

***Allowable Subject Matter***

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14. Claims 40-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-33 are allowed.

Applicant's arguments filed 11/24/04 (with respect to claims 34-39 and 44-45) have been fully considered but they are not persuasive.

The rejections of claims 34-39 and 44-45 are hereby maintained as set forth in the last office action (and repeated above).

In the remarks the applicant argued the limitations of claims 1-33. These claims are not now rejected. The remarks did not contain arguments with respect to claims (34-39 and 44-45). The Examiner contends that the references cited in the outstanding rejections taught the limitations in the claims 34-39 and 44-45.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (703) 305-9674. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (703) 305-9712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC



**ERIC COLEMAN**  
**PRIMARY EXAMINER**